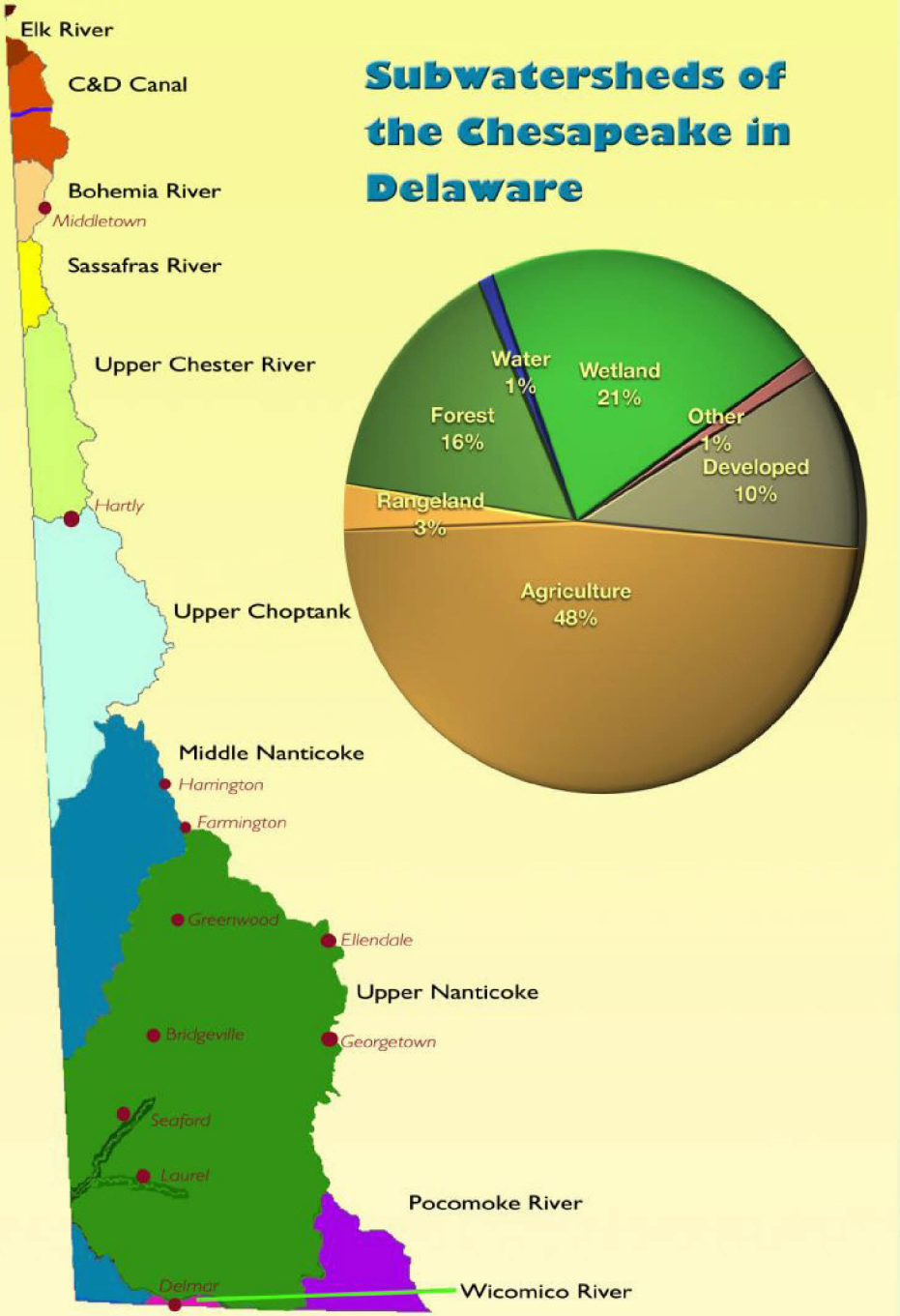
DOING OUR PART

Delaware's role in restoring the Chesapeake Bay and our waterways

Our purpose

- To discuss the importance of the Chesapeake and its rivers, streams and wetlands to Delaware
- To discuss the challenges of meeting EPA's timeline and cleanup goals
- To ask for Delawareans to resolve to meet these challenges themselves rather than have the federal government step in

Nanticoke River near Middleford



The Chesapeake Watershed includes all three counties, including about half of Sussex's land area, one third of Kent's, and a tenth of New Castle's

Mud Mill Pond – Kent

Mason-Dixon marker

A source of beauty, history, food, work and recreation

The value of its ecosystem to us*

Natural goods: Commodities that can be sold such as water supply, fish, timber and minerals

Natural services: Ecological benefits to society such as flood control, water filtration, and fishery habitat

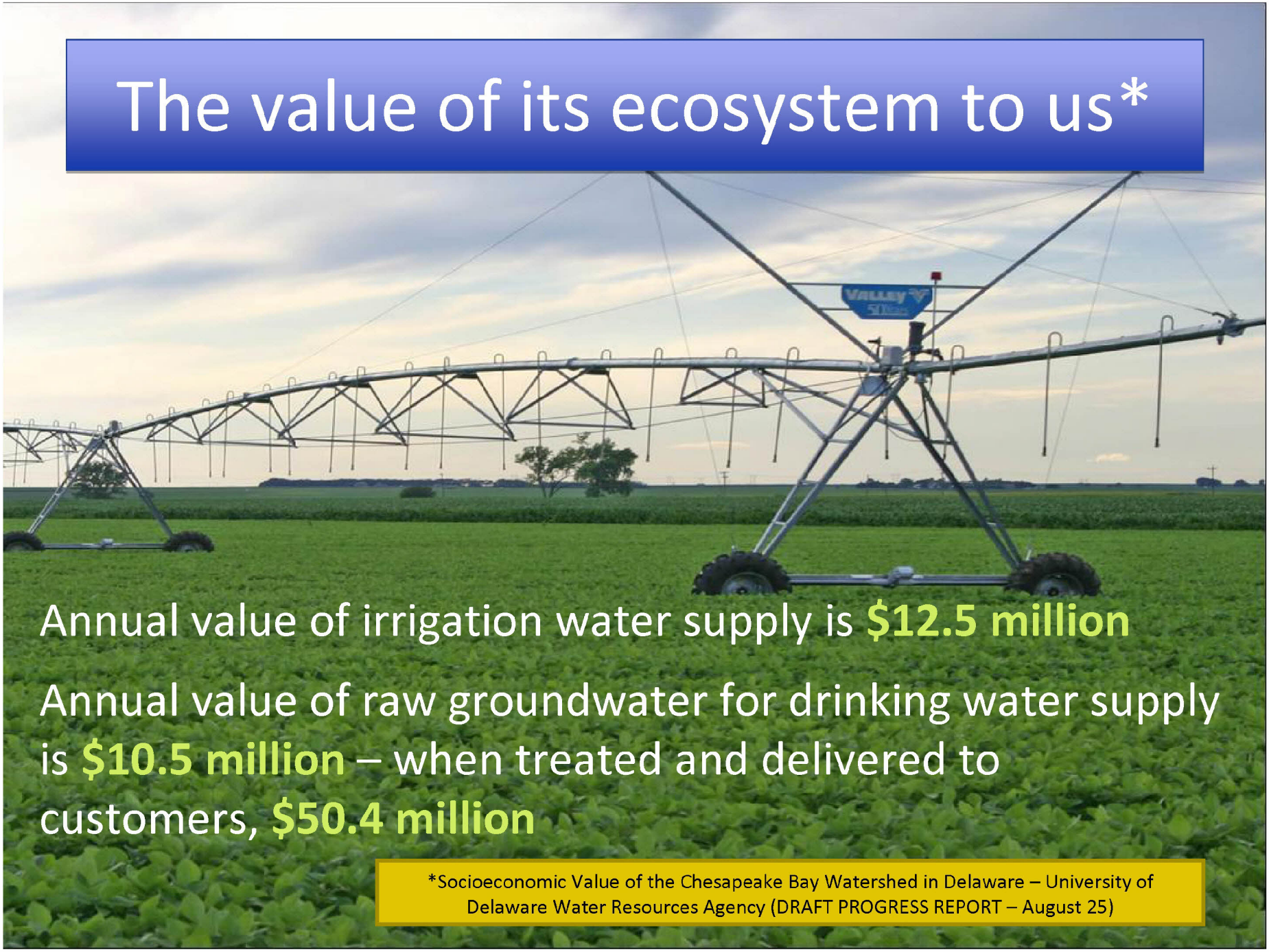
*Socioeconomic Value of the Chesapeake Bay Watershed in Delaware – University of Delaware Water Resources Agency (DRAFT PROGRESS REPORT – August 25)

The value of its ecosystem to us*

The total value of these natural goods and services in the Delaware portion of the watershed is $110 billion.

*Socioeconomic Value of the Chesapeake Bay Watershed in Delaware – University of Delaware Water Resources Agency (DRAFT PROGRESS REPORT – August 25)

The value of its ecosystem to us*



Annual value of irrigation water supply is **$12.5 million**

Annual value of raw groundwater for drinking water supply is **$10.5 million** – when treated and delivered to customers, **$50.4 million**

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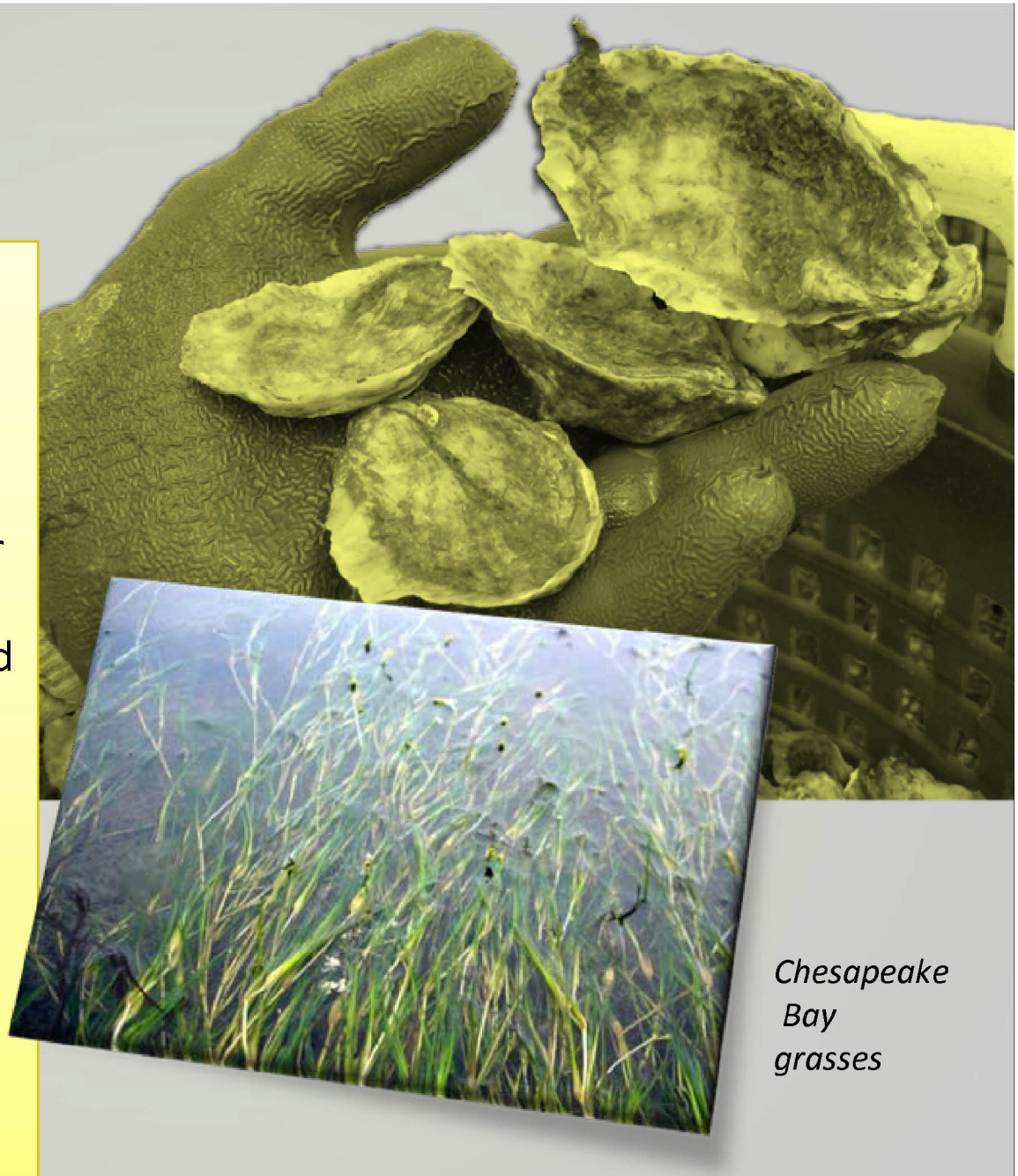
What is polluting our waterways?

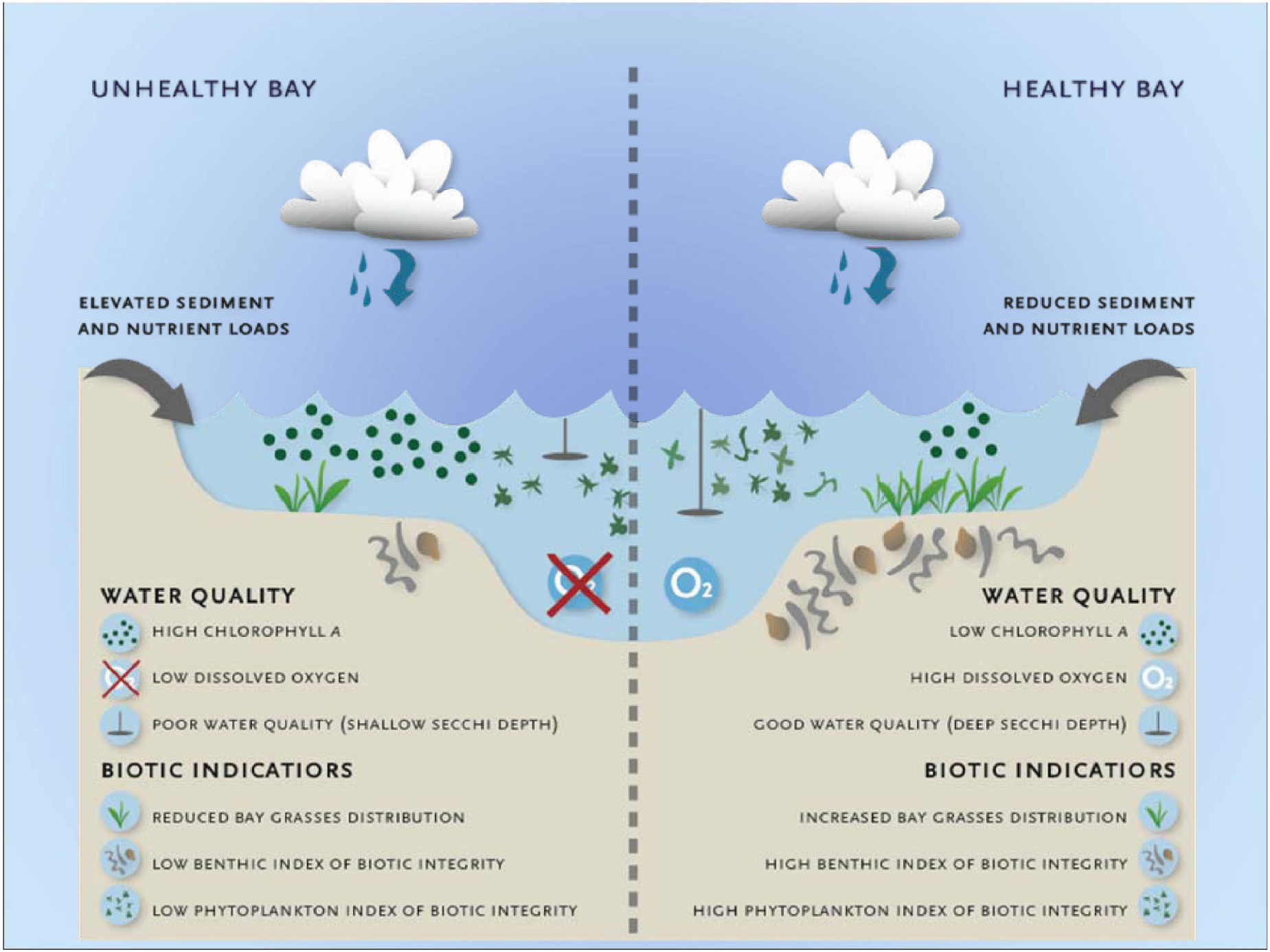
Excess nutrients (nitrogen and phosphorous) fuel the growth of dense algae blooms.

The nutrients and sediment block sunlight that underwater grasses need to grow. Grasses provide food for waterfowl and shelter for blue crabs and juvenile fish.

The pollutants also rob the water of oxygen that crabs, oysters and other bottom-dwelling species need to survive.



Chesapeake Bay grasses


UNHEALTHY BAY
HEALTHY BAY
ELEVATED SEDIMENT AND NUTRIENT LOADS
REDUCED SEDIMENT AND NUTRIENT LOADS
WATER QUALITY
HIGH CHLOROPHYLL A
LOW DISSOLVED OXYGEN
POOR WATER QUALITY (SHALLOW SECCHI DEPTH)
BIOTIC INDICATIORS
REDUCED BAY GRASSES DISTRIBUTION
LOW BENTHIC INDEX OF BIOTIC INTEGRITY
LOW PHYTOPLANKTON INDEX OF BIOTIC INTEGRITY
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BIOTIC INDICATIORS
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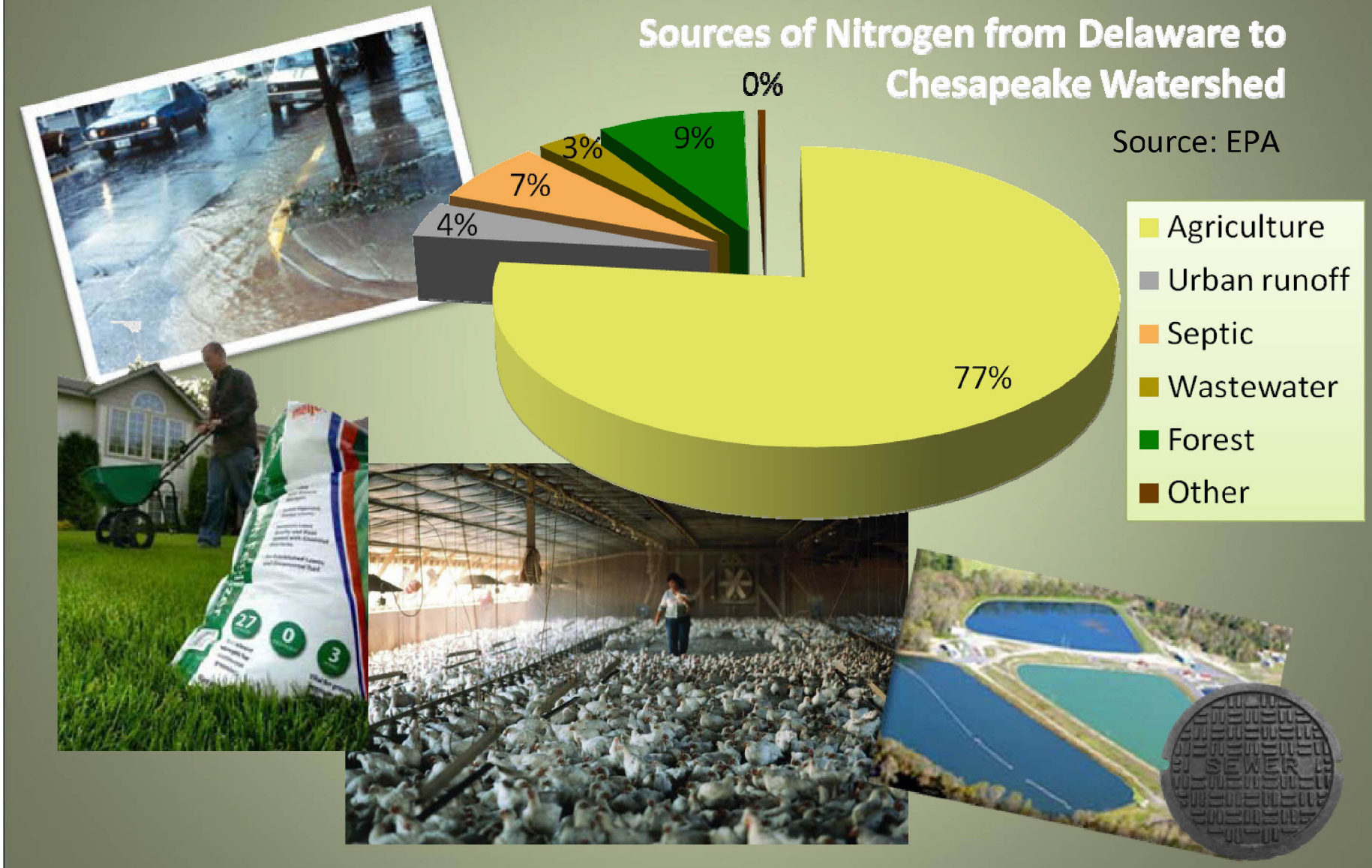
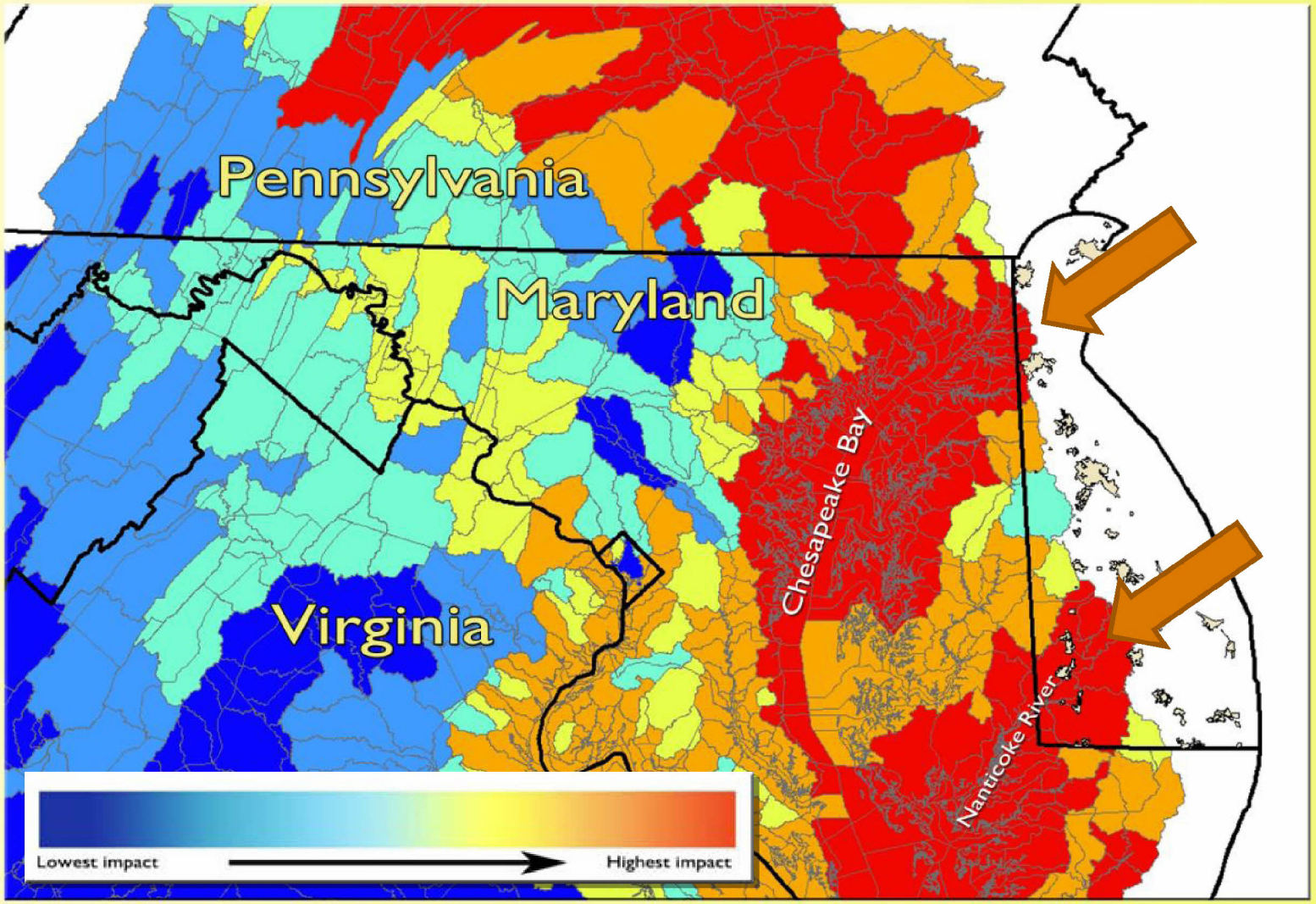
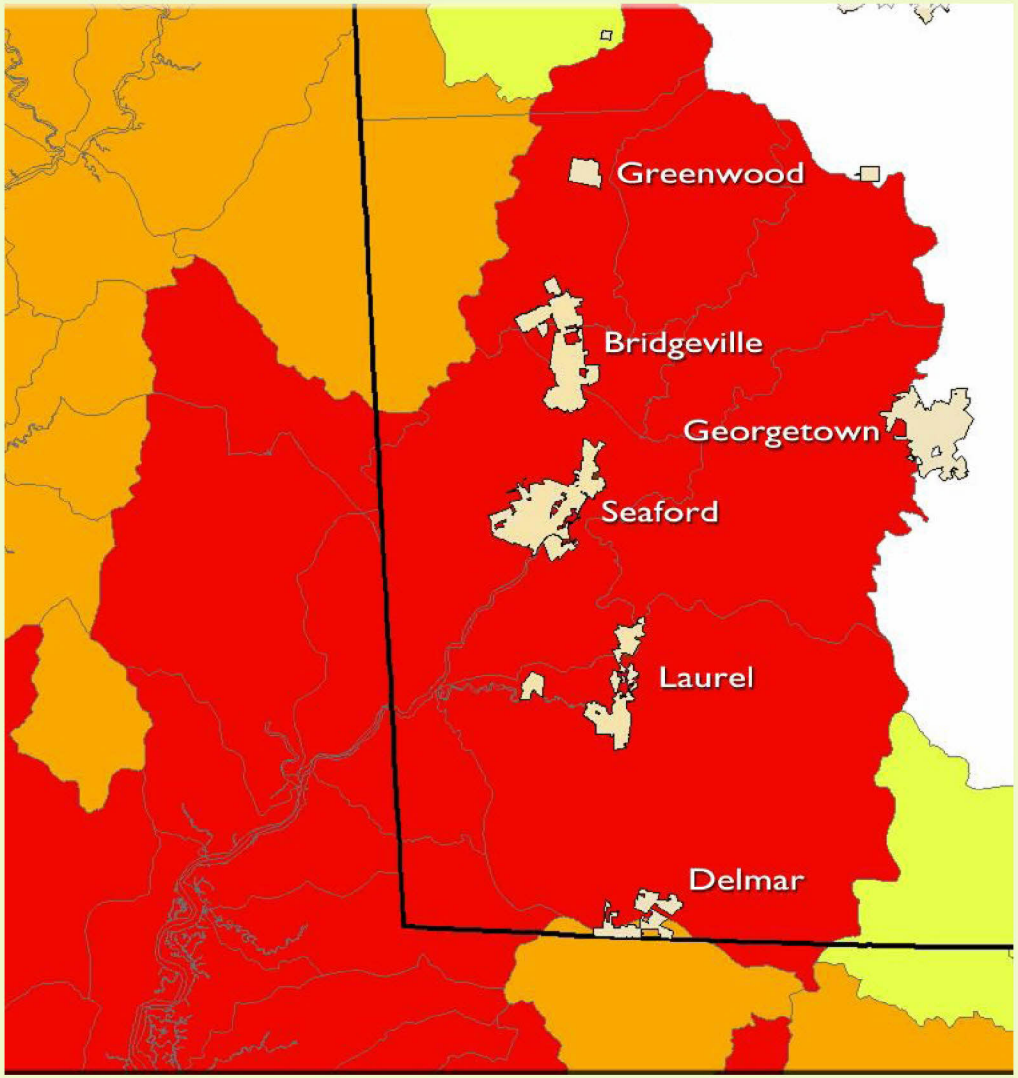
Where does Bay pollution come from?

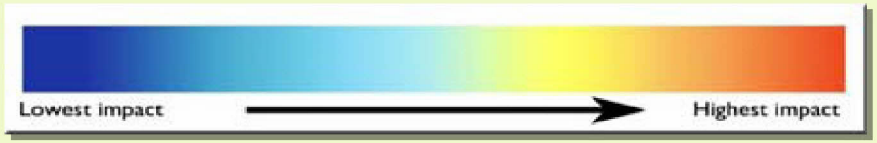




Delaware is an "effective" polluter of the Chesapeake Bay

Impact of red areas on Bay water quality at least 10 times higher than blue areas





Sandy soils, closeness to bay, ditching practices, flatness all contribute to our high impact.

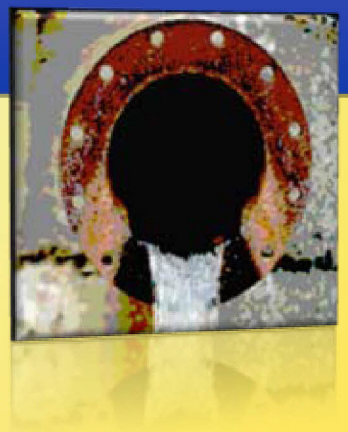
The good news is the steps we take to reduce pollution will be very effective at improving Bay quality.

Chesapeake Bay TMDL

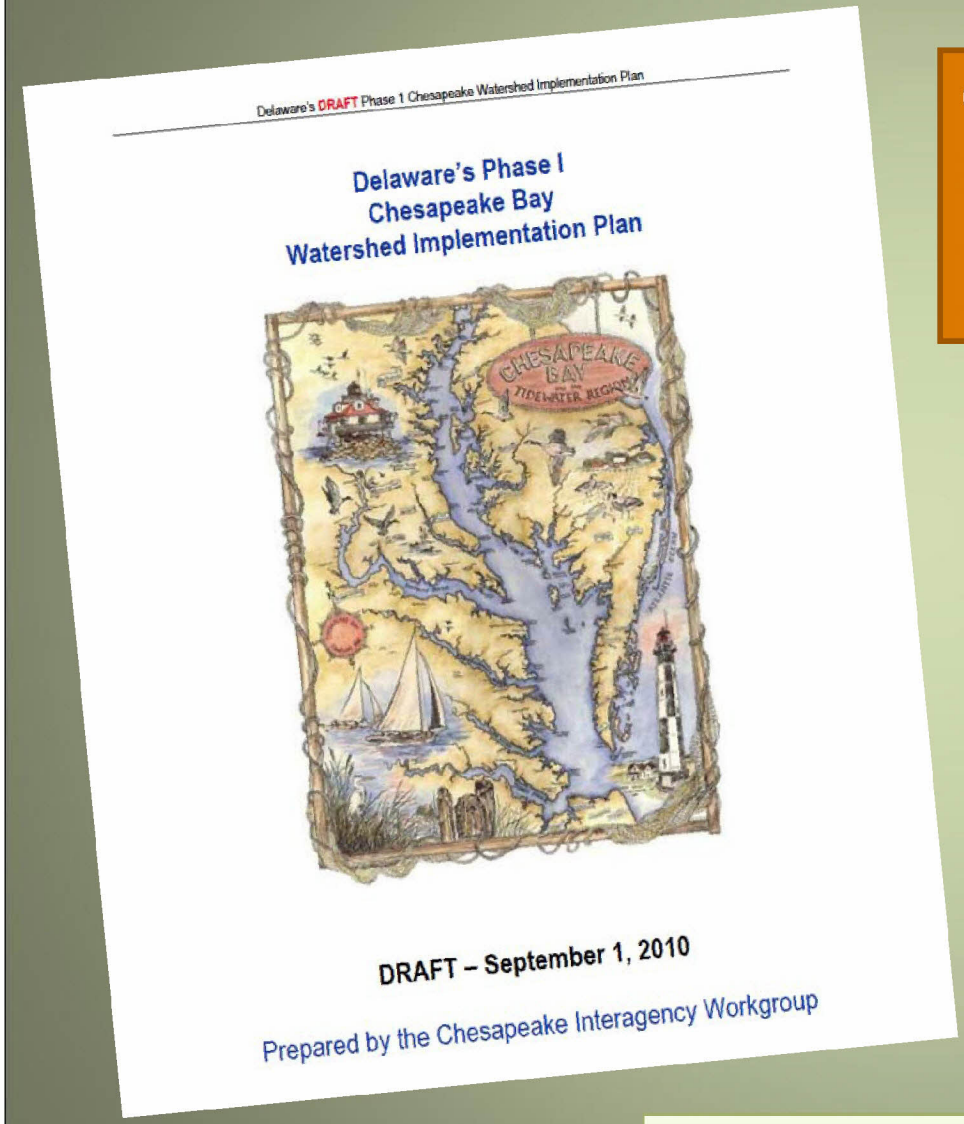
- Builds on previous Delaware efforts in Nanticoke, Chester, Choptank, Marshyhope, and Pocomoke
- Covers entire 6-state and DC
- Sediment TMDL i… …ogen and Pho…
- Rein… …residential Executive Order
- We ar… required to develop a three-phase Watershed Implementation Plan (WIP)

Phase 1 Draft Plan Was Due September 1
Phase 1 Final Plan Due November 29

A Total Maximum Daily Load is the maximum amount …f a pollutant that …n enter a water …y from point and non-point sources and still achieve water quality standards.



What's in Delaware's plan?



Our strategy for meeting the EPA's required reductions for Nitrogen, Phosphorous and Sediment by 2025 is to focus on these areas:

- Wastewater
- Onsite wastewater (septic)
- Stormwater
- Land use
- Agriculture
- Restoration
- Public lands

Strategies developed by interagency workgroups

Plan does not yet meet TMDL for 2025

In millions of pounds

	Nitrogen Load	Phosphorous Load	Sediment Load
2009 Load	4.18	0.32	64.5
2017 Interim Load (60% of 2025 Load)	3.44	0.28	62.4
2025 Final Load	2.95	0.26	61
Required reduction by 2025	29%	19%	1-10%
What Our Plan Shows Now for 2025	18%	11%	21%
	Target missed	Target missed	Target achieved

Wastewater

Laurel Wastewater Treatment Plant Upgrade - 2007

- Major treatment plants include Bridgeville, Laurel, Seaford and Invista
- All are operating well below permitted capacity for nitrogen, phosphorous and sediment
- DNREC's goal is to work with local governments to accommodate future growth

Onsite Wastewater

- DNREC developing new inspection requirements and performance standards to meet TMDLs in statewide regulations

- Advanced treatment for all systems within 1,000 feet of Chesapeake tidal waters and wetlands *(2017)*

- DNREC, UD estimating growth on septic vs. sewer – comparing to EPA estimates

Stormwater

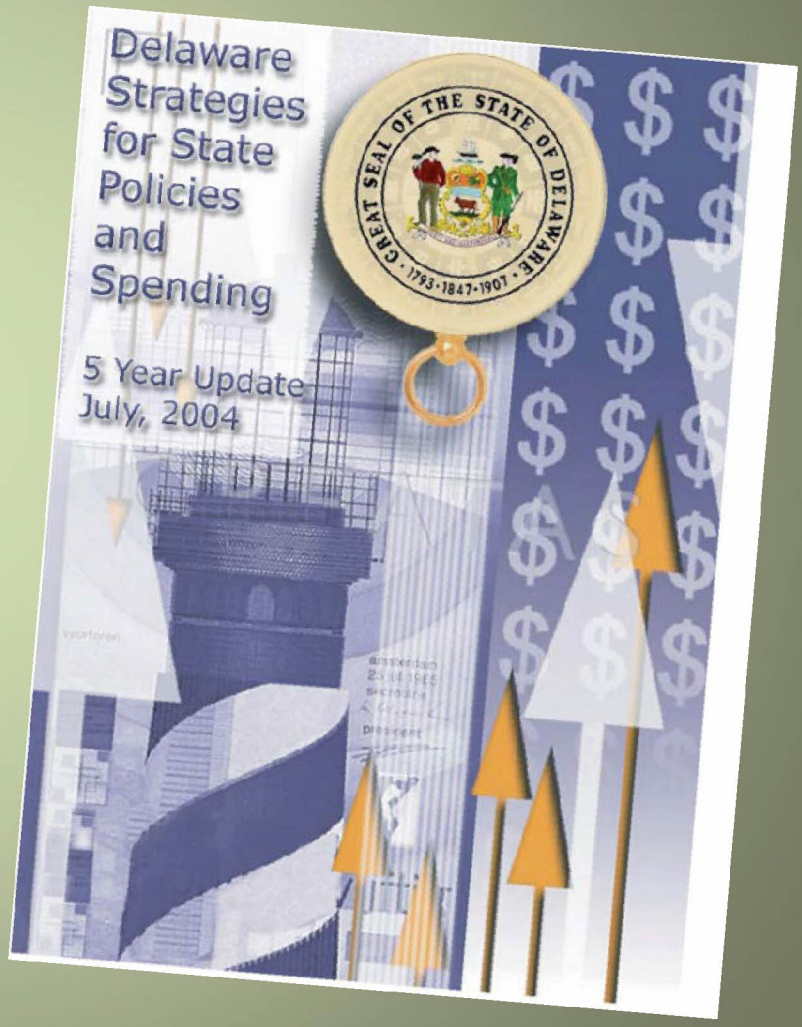
- Revision of state Sediment and Stormwater regulations – emphasize green technologies, likely offset component *(2011)*
- New EPA turbidity (measure of water clarity) standards for construction projects *(2013)*
- Update Industrial Stormwater regulations *(2012)*
- Renewal of DelDOT/New Castle County municipal stormwater permit (MS4) – only such permit in watershed at this time
- Stormwater retrofits were not strongly recommended because area is very rural – not cost-effective

Stormwater

Promote “green” best management practices that use natural features and mimic local hydrology rather than rely on structures

Land Use

- Use state project reviews and comprehensive planning process to proactively direct growth – especially in Nanticoke corridor (Bridgeville-Seaford-Laurel)
- Reduce fertilizer use on developed lands
- UD completing analysis of watershed to map growth through 2025



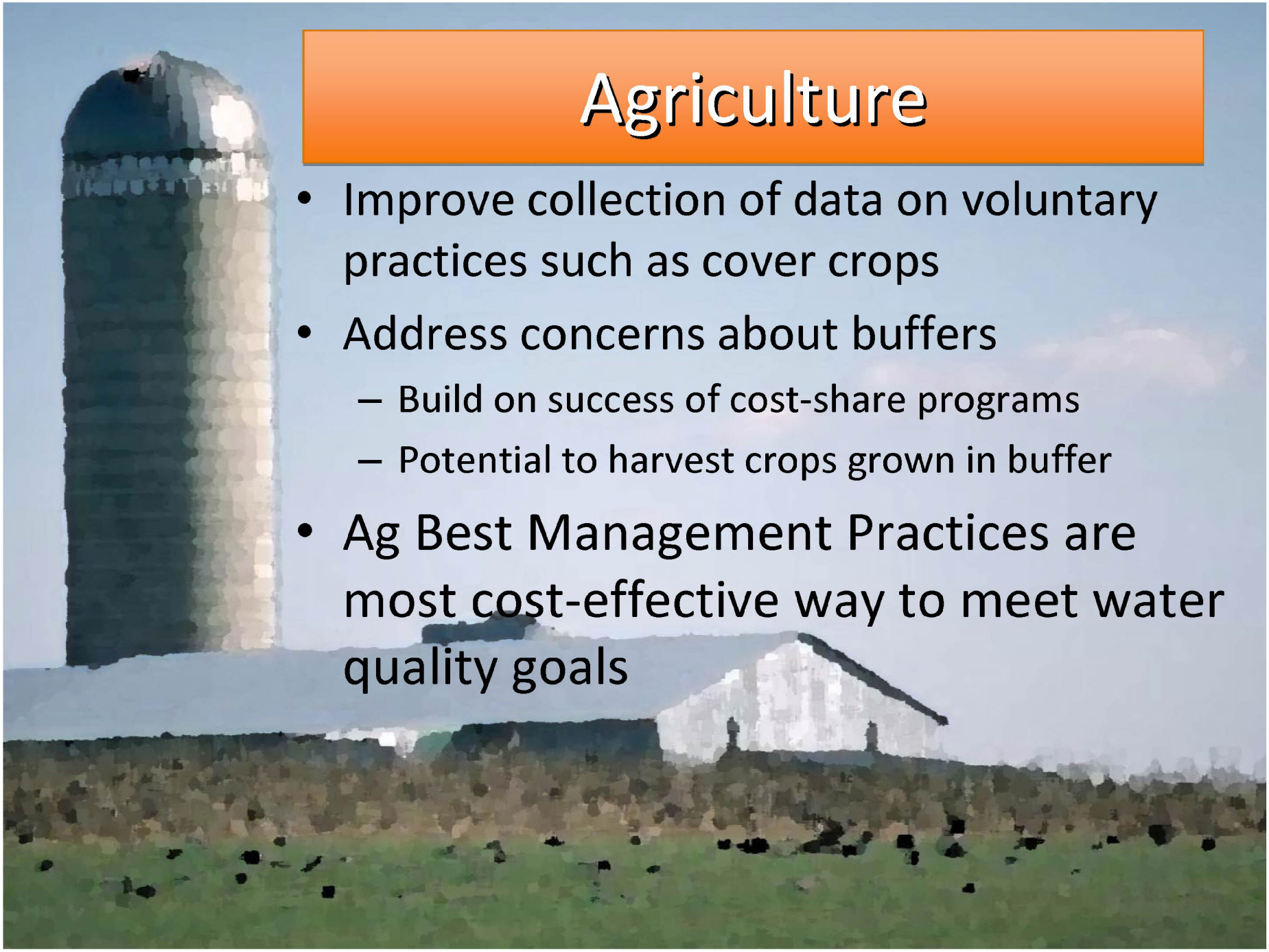
Land Use - Offsets

- Develop plan for offsetting future growth *(2012) - Conventional approaches may not be able to fix problem. Looking for lowest cost, market-driven solution to improving water quality*
- Our plan is to create one offset program to handle nutrients (quality) and stormwater volume (quantity)
- Improve tool for determining and tracking impacts of land use changes on pollution
- EPA currently developing guidance on offsets and trading
- Can benefit both development and ag communities

Agriculture

- Revised Concentrated Animal Feeding Operations (CAFO) regulations take effect in November
  - 250 out of 272 CAFOs are in Chesapeake
- State nutrient management regulations also will be updated
- Increase volume of manure relocated out of watershed or sent to alternative use facilities
- Set a goal of 50 percent of aglands with cover crops each year

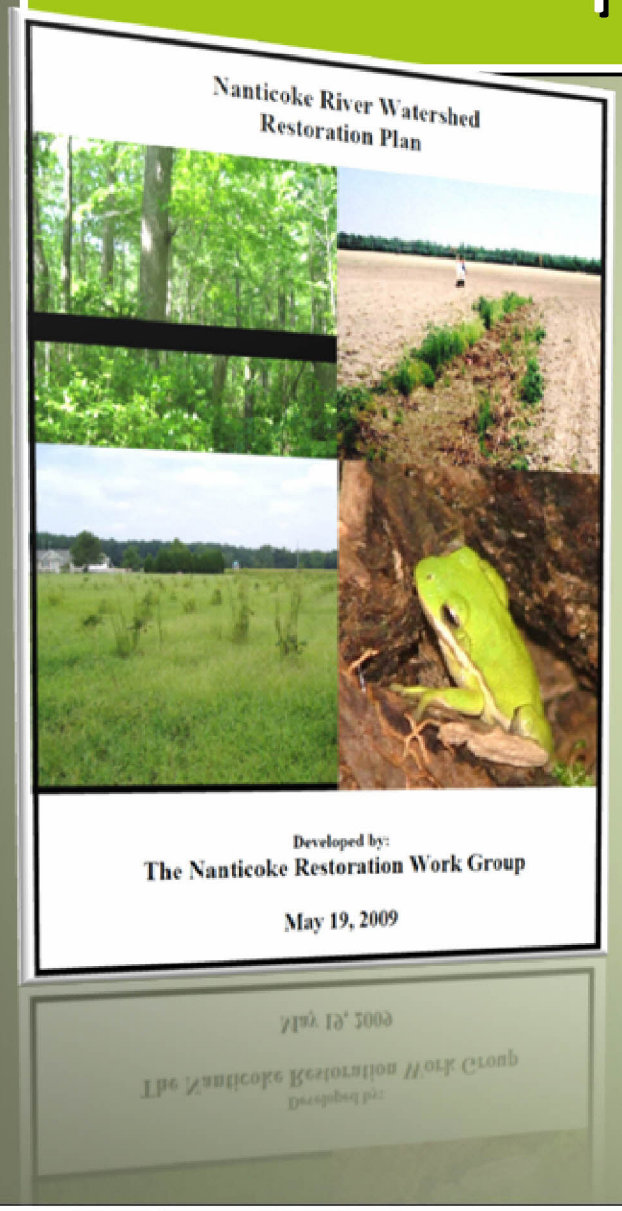
Perdue pellets



Agriculture

- Improve collection of data on voluntary practices such as cover crops
- Address concerns about buffers
  - Build on success of cost-share programs
  - Potential to harvest crops grown in buffer
- Ag Best Management Practices are most cost-effective way to meet water quality goals

Restoration



- Partners include private landowners, DelDOT, Delaware Forest Service and Natural Resource Conservation Service
- Restoring headwater forests, channelized streams, and creating stream and wetland buffers will improve water quality
- Gaps in data, funding and outreach exist

Public Lands

- The state manages almost 40,000 acres in the watershed
- State and federal stewards will lead by example
- Review opportunities for new Best Management Practices, reforestation
- Funding a challenge

The process

- DNREC has been working with stakeholders since 1998 to develop TMDLs, or pollution budgets, in the Chesapeake watershed
- EPA now requiring each Chesapeake state to develop a plan that details how those limits will be achieved – 60% by 2017 and 100% by 2025
  - Phase One due November 29, 2010
  - Phase Two due November 2011
  - Phase Three due 2017

Consequences of missing goals

Increased and direct regulation by EPA of

- Industrial, municipal wastewater
- Municipal stormwater systems
- Agricultural operations

Redirection of federal funds

Also, consideration of revenue measures to pay for cleanup

Meeting with Public, Stakeholders

- Separate meetings have been held with local governments, Home Builders, agriculture representatives, and other groups
- More meetings can still be held

Submit comments by
October 31
to Jennifer Volk
Jennifer.Volk@state.de.us

For more information, go to website:

http://www.wr.dnrec.delaware.gov/Information/Pages/Chesapeake_WIP.aspx